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CONNECTICUT

AGRICULTURAL EXPERIMENT STATION

NEW HAVEN, CONN.

BULLETIN 138, APRIL, 1902.

Commercial Feeding Stuffs in the  
Connecticut Market.

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The Bulletins of this Station are mailed free to all citizens of Connecticut who apply for them, and to others as far as the limited editions permit.



# CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

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## THE COMPOSITION OF THE COMMERCIAL FEED- ING STUFFS SOLD IN CONNECTICUT.\*

During the autumn of 1901, agents of this Station collected in forty-one towns and villages of this State two hundred and sixty-four samples of commercial feeding stuffs.

The analyses of these feeds appear in Table IV, pages 20-39, This table shows:

- (1) The chemical composition of each of the samples as determined by the methods of analysis adopted by the Association of Official Agricultural Chemists.
- (2) The average composition as determined by these analyses.
- (3) The digestible nutrients of these feeds. These are calculated by the use of the digestion coefficients compiled by Jordan in Bulletin 77 of the office of Experiment Stations, and which, so far as they apply to the feeds discussed in this report, are given in Table I on page 14.

### COTTON SEED MEAL.

The six samples analyzed were of excellent quality, the percentage of protein ranging from 43.1 to 45.7, and averaging 44.4; in every case being fully up to the manufacturer's guarantee.

The minimum percentage of protein is equivalent to 6.89 per cent. of nitrogen. A considerable number of samples of cotton seed meal analyzed in March, 1902, contained less nitrogen than this. The cotton-seed oil producers, in convention at New Orleans, prescribed that either "choice" or "prime" cotton seed meal should contain not less than 6.58 per cent. of nitrogen (8 per cent. of ammonia).

The average percentages of protein and fat, and the average prices, for the last three years have been:

	1899	1900	1901
No. Samples .....	10	4	6
Percentage of Protein .....	46.4	43.9	44.4
"    "    Fat .....	10.4	8.6	9.8
Average price .....	\$24.00	27.00	28.80

\* The microscopic work in connection with the analyses of these feeds was done by Mr. A. L. Winton; the chemical analyses were made by Messrs. Winton, Ogden and Silverman. The results were prepared for publication by the Director.

## LINSEED MEAL.

Confusion still exists in the use of the terms, "old process" and "new process."

By the "old process" the oil is removed by hydraulic pressure, while the "new process" extracts the oil by a solvent, usually benzine. New process meal commonly has less than 2½ per cent. of oil remaining in it, while old process meal has three or more times that amount. The analyses show that samples 4283, 4302, 4413 and 4545 are old process meals, while 4320, 4317, 4309 and 2439 are new process, although 4309 was sold as "old process" meal.

The samples analysed this year were of good quality, one of them containing 44 per cent. of protein, an abnormally high percentage. The average percentages of protein and fat found in linseed meal, with the prices for the last three years, are as follows:

Process.	1899		1900		1901	
	New.	Old.	New.	Old.	New.	Old.
No. of Samples.....	4	8	2	3	3	4
Percentage of Protein....	37.7	33.8	38.4	31.3	39.0	34.4
"    "    Fat .....	2.4	7.7	2.4	6.7	1.8	7.7
Average price .....	\$28.10	29.00	32.50	31.00	30.00	30.50

New process meal has from four to seven per cent. more of protein, and from four to five per cent. less of fat, than the old process meal.

## GUARANTEES.

Samples 4320, 4309, 2439 were guaranteed to contain 38 per cent. of protein and 1 per cent. of fat, and fully met this guarantee.

The composition of samples 4413, guaranteed 32 per cent. of protein and 5 of fat, and 4545, guaranteed 34 per cent. of protein and 6 of fat, fully met the guarantees.

Samples 4317 and 4283 had no guarantees.

## WHEAT FEEDS.

These are by-products in the manufacture of wheat flour. Several different processes of milling are in common use, yielding by-products which are not entirely alike in composition.



There are also differences in composition between the products from winter wheat and those from spring wheat.

Wheat Bran consists of the outer layers of the wheat berry, which are dark in color and do not easily pulverize.

Wheat Middlings, as found in the feed market, consist of inner layers of the covering of the berry, which are lighter in color and more easily pulverized than bran, and of other parts from which fine white flour cannot be made.

Red Dog Flour is the poorest grade of flour; off color and often sold as a cattle food. It is also used for paste and in making "pancake leather"—composed of leather scraps and flour paste compacted by hydraulic pressure, stated to be made up into soles for children's shoes.

Many mills do not sell bran and middlings separately, but run them together, often with other waste wheat products, and sell the mixture as "Mixed Feed."

With a single exception the samples of wheat feed were not accompanied with any statements of guaranteed composition.

In the table which follows, the wheat products from the mills named below are classed as winter wheat.

Acme Milling Co., Indianapolis, Ind.	Maumee Valley Milling Co., Defiance, Ohio.
American Cereal Co., Chicago.	McDaniel & Pitman Co., Franklin, Ind.
Blish Milling Co., Seymour, Ind.	Meyer, J. T., & Co., Clinton, Mo.
Cole, H. C. Milling Co., Chester, Ill.	Miles & Son, Frankfort, Ky.
Eldred Mill Co., Jackson, Mich.	Model Roller Mills, Nashville, Tenn.
Evans, Geo. F., Hoosier Mills, Indianapolis, Ind.	Moore, R. P., Milling Co., Princeton, Ind.
Hannibal Milling Co., Hannibal, Mo.	Rex Milling Co., Kansas City, Mo.
Harter, Isaac, & Co., Galena, O.	Saginaw Milling Co., Saginaw, Mich.
Hecker-Jones-Jewell Milling Co., N. Y.	Stock, F. W., Hillsdale, Mich.
Holly Milling Co.	Scott's Flour Mills, Detroit, Mich.
Hunter Bros., St. Louis.	Taylor Bros. Milling Co., Quincy, Ill.
Jenks, J., & Co., Sand Beach, Mich.	Valley City Milling Co., Grand Rapids, Mich.
Kane Mill Co., Atchison, Kansas.	Voigt Milling Co., Grand Rapids, Mich.
Kehlor Bros., St. Louis, Mo.	Walsh De Roo Milling Co., Holland, Mich.
Lawrenceburg Roller Mills Co., "Snowflake," Lawrenceburg, Ind.	
Lexington Roller Mill Co., Lexington, Ky.	

The wheat products from the following mills are classed as from spring wheat.

Anchor Milling Co., Superior, Wis.	Moseley & Motley Milling Co., Rochester, N. Y.
Andrews & Co., Minneapolis.	New Prague Milling Co., New Prague, Minn.
Banner Milling Co., Buffalo, N. Y.	North Dakota Milling Association, No. Dakota.
Bay State Milling Co., Winona, Wis.	North Western Consolidated Milling Co., Minneapolis.
Berger, Anderson Co., Milwaukee.	Pillsbury-Washburn Co., Minneapolis.
Daisy Roller Mill Co., Milwaukee, Wis.	Russell & Miller Milling Co., Superior, Wis.
Davis Co., J. G.	Sheffield Milling Co., Faribault, Minn.
Duluth Imperial Mill Co., Duluth.	Star & Crescent Milling Co., Chicago.
Freemen Milling Co., Superior, Wis.	Urban Roller Milling Co., Buffalo, N. Y.
Grafton Roller Mills, Grafton, N. D.	Washburn-Crosby Co., Minneapolis.
Imperial Mill Co., Duluth, Minn.	Whitney & Wilson, Rochester, N. Y.
Lake Superior Mills, Superior, Wis.	Woodworth & Co., E. S., Minneapolis.
Listman, Wm., Milling Co., Superior, Wis.	
Miner-Hillard Milling Co., Wilkes Barre, Penn.	
Minkota Milling Co., Superior, Wis.	

#### *Bran from Winter Wheat.*

The six samples examined show considerable range in the percentage of protein, from 14.75, in Canadian bran, to 18.06. All appear to be free from adulteration.

#### *Bran from Spring Wheat.*

The eighteen samples examined were all of excellent quality as judged by chemical composition.

#### *Middlings.*

All the samples, both of winter and of spring wheat middlings, were of good quality, the spring middlings containing considerably more protein.

#### *Mixed Feed.*

In the table are included 26 analyses of winter wheat mixed feed, and nine of spring wheat feed. In every case the feed is, judged by chemical analyses alone, of excellent quality.

#### *Average Composition of the Various Wheat Products.*

The average composition of the various wheat feeds as sold in Connecticut in the last three years, with their prices, are given in the following table:

## AVERAGE COMPOSITION AND PRICE OF WHEAT FEEDS IN CONNECTICUT IN 1899, 1900 AND 1901.

	Bran.		Middlings.		Mixed Feed.	
	Winter.	Spring.	Winter.	Spring.	Winter.	Spring.
1899						
Protein .....	15.9	15.6	15.8	15.6	16.8	16.8
Fat .....	4.3	4.7	4.4	4.7	4.5	5.1
Ton price .....	\$19.80	19.14	19.00	19.25	19.44	19.25
1900.						
Protein .....	16.1	16.5	17.7	19.1	18.1	17.6
Fat .....	4.6	5.0	4.7	5.5	4.7	5.3
Ton price .....	\$21.09	20.00	21.00	21.50	21.00	20.80
1901.						
Protein .....	16.3	17.3	18.0	19.7	17.5	18.5
Fat .....	4.5	4.7	5.0	5.5	4.7	5.1
Ton price .....	\$21.80	21.06	22.75	22.10	22.20	22.20

This table indicates that

1. The spring wheat products, as a rule, have somewhat higher percentages, both of protein and fat, than the winter wheat products.
2. This difference is rather more striking in the case of middlings than in that of either bran or mixed feed.
3. The percentages of protein and of fat in bran are rather lower than in either middlings or mixed feed.
4. On the average the winter wheat products sell at a slightly higher price than the spring wheat products.

*Guarantees.*

Of all the samples of wheat feeds examined, only one had a guarantee of composition. This was a middlings from N. L. Berry & Co., Providence, R. I., in which 16.85 per cent. of protein and 5.2 per cent. of fat were guaranteed. The sample contained 18.5 per cent. of protein and 4.66 per cent. of fat.

## ADULTERATED MIXED FEED.

Three samples of mixed feed have been found to be grossly adulterated with ground corn-cobs. Two of these samples, Nos. 4295 and 4406, bore the brand, "Choice Eclipse Mixed Feed." Both were traced to the W. R. Mumford Co., feed dealers of Chicago, but could be traced no further; no reply, regarding these adulterated feeds, being received to letters of

inquiry which were correctly addressed to this firm and were delivered.

The third sample, 4470, was stated to be sold by D. C. Comstock, Providence, R. I., under the name "C" mixed feed. Letters sent to that address were returned, as no such person could be found. We have since heard that he has left Providence and has gone out of business.

The fragments of corn-cob were easily and certainly identified by Mr. Winton with the microscope. The chemical composition also establishes the fact of adulteration. There follows the average composition of winter and spring mixed feed and for comparison the analyses of the adulterated samples.

	Pure.		Adulterated with Cobs.		
	Winter Wheat Feed.	Spring Wheat Feed.	Choice Mixed Feed 4295	Eclipse Mixed Feed 4406	C. Mixed Feed 4470
Water.....	9.11	9.22	8.62	8.23	8.07
Ash.....	5.64	5.26	4.53	4.74	4.73
Protein.....	17.51	18.54	12.50	12.44	13.75
Fiber.....	7.70	8.31	14.59	17.07	13.54
Non-nitrogenous Extract	55.36	53.56	56.27	54.17	56.34
Fat.....	4.68	5.11	3.49	3.35	3.57
	100.00	100.00	100.00	100.00	100.00

Calculation shows that a mixture of 75 pounds of wheat feed and 25 pounds of ground corn-cobs would have the same composition as these "Choice Eclipse" and "C" frauds.

They are frauds because sold under a name applied, by the produce exchanges and dealers and purchasers alike, only to feeds consisting wholly of wheat products, being a mixture of bran and middlings or of all the waste portion of the wheat used for the flour manufacture. They are also sold for the same price as genuine mixed feed.

## MAIZE AND MAIZE PRODUCTS.

### *Corn Meal.*

The two samples, of which analyses are given in the table, have the average composition. They were not sold with a guarantee.

*Gluten Meal.*

The Atlantic Gluten Meal, made at Westport, Conn., is a wheat gluten containing 42.75 per cent. of protein, much more than the corn glutens contain, and its composition is fully up to what is guaranteed.

Only two other brands of gluten meal were found by our sampling agents: Cream Gluten Meal, made by the Chas. Pope Glucose Co., and Chicago Gluten Meal, made by the Glucose Sugar Refining Co., both of Chicago.

The average percentages of protein in the two samples of Cream Gluten agreed with the guarantee, but the amount of fat was nearly two per cent. below the guarantee. The guarantee of 39 per cent. of protein and 2 per cent of fat in Chicago Gluten Meal is understood to refer to a dry basis. The three samples analyzed contained, on the average, 8.73 per cent. of moisture, 35.98 of protein and 3.42 of fat, which calculated to a dry basis, is 39.4 per cent. of protein and 3.7 per cent. of fat.

*Gluten Feed.*

The table contains analyses of a considerable number of brands of gluten feed. The average composition of each brand is given below with the guarantee.

	Protein.		Fat.	
	Found.	Guaranteed.	Found.	Guaranteed.
Buffalo Gluten Feed .....	26.60	28.0	3.51	3.0
Pekin " " .....	26.15	27.5	3.50	3.3
Davenport " " .....	25.68	27.0	4.23	3.0
Marshalltown Gluten Feed .....	27.66	27.0	3.61	3.0
Waukegan " " .....	26.62	27.3	4.22	3.4
Geneva " " .....	26.19	27.0	3.76	3.0
Nat'l. Starch Co.'s Gluten Feed ..	25.37	31.7	3.06	4.3

The Buffalo, Davenport and Marshalltown Gluten Feeds are made by the Glucose Sugar Refining Co. of Chicago. If their guarantees refer to water-free basis, then the goods sampled were above the manufacturer's guarantee in composition, but if not, both the Buffalo and Davenport feeds are below it.



*Germ Oil Meal.*

Made from corn germs by the Glucose Sugar Refining Co. of Chicago, contains, *in the dry substance*, the guaranteed percentage of protein, 25.5, and of fat, 10.5.

*Corn Bran Sugar Feed.*

This material, apparently sold without guarantee, contains only about one per cent. more of protein than corn meal and is not, therefore, by any means a concentrated feed which can be profitably used for supplying protein to balance a ration.

*Hominy Feed and Hominy Chop.*

Twenty-one samples of this feed are given in the table. The percentage composition is quite uniform. This feed, which has sold for about the same price as wheat bran, contains about five per cent. less of protein and three or four per cent. more of fat than the wheat feeds. It is, therefore, a more costly feed to use. Generally it is sold without a guarantee.

The Niagara Hominy Meal has, however, a guarantee of 11 per cent. of protein and 8 of fat, which is fully met in the three samples analyzed.

Hunter Bros. Hominy Feed is guaranteed to contain 11 per cent. of protein and 7.70 per cent. of fat, and the single analysis shows somewhat more than these percentages.

*Cerealine Feed.*

This is a corn product, not greatly differing from hominy chop in composition, containing three fourths of a per cent. more of protein, about one and a half per cent. less of fat and two and a half less of fiber.

## RYE FEED.

Analyses of six samples are given in the table. One of them, 4391, is very different from the others in composition and quite inferior to them, having four per cent. less of protein. The other five samples have the usual composition of rye feed. No guarantees of composition were given with these feeds.

## BUCKWHEAT PRODUCTS.

*Buckwheat Middlings.*

This feed, which has been made and sold for years by the Quinnebaug Store of Danielson, is richer in protein than the gluten feeds, is moderate in price and is said to give excellent results as a feed for milch cows.

*Buckwheat Shucks.*

As the analysis shows, have very little, if any, feeding value.

## FACTORY MIXED FEEDS.

*Provender.*

Of the twenty-seven samples, of which the analyses are given in the table on pages 34-35, one, 4335, is stated to contain wheat middlings which explains its higher percentage of protein.

A single sample, 4537, stated to be ground by M. L. Crittenden, at Buffalo, N. Y., is inferior, containing only 8.75 per cent. of protein; the others, most of them ground at local mills in this State, have the average composition and are of good quality.

Provender ground at the small mills in this State is generally of better quality than that which is brought in from the West.

The Sterling Provender, 4537, above referred to, has a guarantee of 7.9 per cent. protein and 6.3 per cent. fat. It is far below guarantee in both particulars.

Sample 4490, made by E. C. Dennis, has a guarantee of 12 per cent. protein and 2.5 per cent. of fat. The protein found is nearly 2 per cent. less than the guarantee.

The provenders with guaranteed composition are:

		Protein.		Fat.	
		Guaranteed.	Found.	Guaranteed.	Found.
4537	M. L. Crittenden, Buffalo.....	9.9	8.75	6.3	2.40
4490	E. C. Dennis.....	12.0	10.19	2.5	4.27
4426	Narragansett Milling Co. ....	10.5	10.81	4.3	4.25
4390	Miner, Hillard.....	10.5	10.12	4.3	4.28

## OAT FEEDS, AND CORN AND OAT FEEDS.

These appear under various names, Monarch Chop Feed, Boss Corn and Oat Feed, Vim Oat Feed, Royal Oat Feed,

De-Fi Corn and Oat Feed, etc. The Vim Oat Feed and Royal Oat Feed consist largely of oat hulls, as is shown both by chemical and microscopic examination. Victor Corn and Oat Feed also contains some wheat. None of these things need any special discussion.

The "corn and oat feeds" as a rule consist of manufacturing rubbish and cannot be used economically for feeding purposes.

#### CORN, OATS AND BARLEY.

This mixture, put up by the American Cereal Co. of Chicago, judged from the five analyses in the table, has a fairly uniform composition, and is sold under a guarantee of 10.8 per cent. of protein and 3.5 per cent. of fat. All of the samples contained considerably more than the guaranteed amounts.

#### PROPRIETARY FEEDS.

These are mixtures sold under trade names which are supposed to be copyrighted.

The Quaker Dairy Feed and American Poultry Food, made by the American Cereal Co. of Chicago; the Dairy Feed, Horse Feed and Poultry Food, made by the H. O. Co. of Buffalo, N. Y., have a fairly uniform composition.

The average composition of these brands, with their guarantees, are as follows:

	Protein.		Fat.	
	Found.	Guaranteed.	Found.	Guaranteed.
American Cereal Co.'s Quaker Dairy Feed	13.60	12.0	3.33	2.50
American Poultry Food	14.37	14.0	6.85	5.50
H. O. Co.'s H. O. Dairy Feed.....	19.69	18.0	4.10	4.50
H. O. Horse Feed .....	13.03	12.0	4.33	4.50
H. O. Poultry Food.....	17.93	17.0	5.23	5.50

The Quaker Dairy Feed is a mixture of corn and wheat products; H. O. Dairy Feed contains oats, wheat, corn and cotton seed; H. O. Horse Feed is made of oats, corn, wheat and linseed; the H. O. Poultry Food is a mixture of corn, oats and wheat, and the American Poultry Food contains corn and wheat.

Blatchford's Calf Meal has practically the same composition as was found last year. It was found to be a mixture of

ground carob beans, linseed, a wheat product, cotton seed and fenugreek, containing about the same percentages of protein, fat and nitrogen-free extracts as the gluten feeds.

The analyses of six animal meals, and other poultry feeds, are also given in the table, and at the end are analyses of four condimental foods or medicines.

#### CONDIMENTAL AND MEDICINAL CATTLE FOODS.

*Poultriotone* is a mixture of wheat offal, corn, bone, salt and charcoal.

*Pasture Stock Food* contains corn, linseed, a wheat product, ginger, charcoal and salt.

*Imperial Egg Food* contains a wheat product, bone, carbonate of lime, red pepper, with 6 per cent. of sand.

*Wilbur's Seed Meal Horse and Cattle Food* contains gluten meal, wheat, linseed, charcoal and salt.

Regarding these condimental foods we can only repeat what was said last year.

The claims that by the use of condiments and spices the digestibility of food can be increased and in this way a saving of feed can be effected, have no basis in fact. No experiments have demonstrated or made even probable such an effect. Stock feeders will be very slow to believe that cotton-seed meal, linseed meal, wheat feeds, or corn products can be made more easily digestible or even more acceptable to healthy cattle by mixing with them Epsom salts, charcoal, ginger or fenugreek.

*The Prices of Condimental Feeds.* The cheapest of those collected in this state in 1901 cost about 20 cents per pound, the most expensive 25 cents.

As foods, pure and simple, such prices are ridiculous and prohibitive. If in large lots they can be bought at half or a quarter of the rates for small packages; even such a discount would make them twice as costly as our most expensive standard feeds, and no one of them is as concentrated a feed as either cotton-seed meal, linseed meal or gluten meal.

In buying medicines mixed at a drug store one pays very much more in proportion than he would for the ingredients singly, in bulk, and in much larger quantity. He pays for the convenience of having all of them accessible in one place in as

small amount as he desires, mixed accurately according to his written directions and put up to be conveniently carried.

There is, however, absolutely no sense in buying at a very high price a lot of drugs of rather mild medicinal properties, of unknown kinds and in unknown proportions, which claim to take the place of a part of the food and to cure almost every ill and defect that cattle and fowls are heir to.

Salt, charcoal, Epsom salts, sulphur, fenugreek, gentian, cayenne and ginger:—they can all be bought probably in any village in Connecticut, they are already in the stables of many dairy farmers and are used by them, their value is well known, and also their uselessness for the treatment of serious illnesses.

TABLE I.—DIGESTION COEFFICIENTS, OR PERCENTAGES OF THE FOOD INGREDIENTS, FOUND BY ANALYSIS, WHICH ARE DIGESTIBLE BY NEAT CATTLE.

(Jordan's Compilation, Office of Experiment Stations, Bulletin 77.)

	Protein.	Fiber.	Nitrogen-free Extract.	Fat.
Cotton Seed Meal.....	88	56	61	93
Linseed Meal, new process ...	85	80	86	97
Linseed Meal, old process....	89	57	78	89
Corn Meal .....	68	--	95	92
Gluten Meal.....	88	--	90	94
Gluten Feed.....	86	78	89	84
Wheat Bran .....	78	29	69	68
Wheat Middlings .....	80	33	81	86
Wheat Mixed Feed .....	80	25	78	78
Rye Meal'.....	84	--	92	64
Malt Sprouts .....	80	33	68	100
H. O. Dairy Feed.....	78	41	70	86
H. O. Horse Feed.....	74	35	79	84
Quaker Oat Feed .....	81	43	67	89
Victor Corn and Oat Feed....	71	48	83	87

The use of the above table is quite simple. Suppose analysis shows a certain sample of cotton-seed meal to contain 43.5 per cent. of protein; that is, 43.5 pounds of protein in 100 pounds of the meal. It is desired to know how much *digestible* protein are contained in 100 pounds of meal. The table of "digestion coefficients" shows that of every 100 pounds of crude protein



in cotton-seed meal 88 pounds are digestible. It follows by the rule of three (100 is to 88 as 43.5 is to 38.28), that of the 43.5 pounds of protein, 38.28 pounds are digestible. To apply the table, multiply the percentage found on analysis by the proper coefficient taken from the table and divide the product by 100. The result will be the percentage amount of *digestible* protein, fiber, etc., as the case may be.

#### REGARDING THE PURCHASE OF COMMERCIAL FEEDING-STUFFS.

It needs to be constantly borne in mind that feeding-stuffs are bought to supply a deficiency of protein in those which are usually raised on the farm.

Hay, corn fodder, ensilage and stover form the basis and make up the bulk of the cattle food and should supply all the coarse feed, as well as most of the starch, sugar and fat which are needed.

They are, however, deficient in protein. The feeder's aim then is, or should be, to buy *digestible protein* at as low a price as he can, in forms relished by his stock. He is not in the market to buy mixtures of cattle medicine and food, nor starchy foods, nor woody fiber, nor the many wastes of factories, where so-called "breakfast goods" for human use are made.

It will very rarely pay him to buy anything which contains as little protein as corn meal. Corn meal he can raise much cheaper than he can usually buy it—and corn meal fed with hay or ensilage needs the addition of some feed richer in protein, in order to avoid waste of starchy matter in feeding.

Table II is a list of the commercial feeding-stuffs mentioned in this Bulletin with the percentages of protein and fat in them, and their average prices, arranged according to the per cent. of protein, the ingredient which the buyer is chiefly concerned with.

Study of the table shows that we have five or six distinct groups of feeding-stuffs:

1. Cotton-seed meal and Atlantic gluten with over 40 per cent. of protein and costing respectively \$28.80 and \$30.00 per ton.
2. The linseed and gluten meals and buckwheat middlings, containing between 30 and 40 per cent. of protein, the prices ranging from \$20.00 to \$33.30 per ton.

3. The gluten feeds containing from 20 to 30 per cent. of protein, prices ranging from \$23.00 to \$25.00 per ton.
4. The wheat feeds, H. O. dairy feed and rye feed, having between 15 and 20 per cent. of protein and costing from \$21.00 to \$25.00 per ton.
5. Lower grade feeds which the feeder of dairy stock need not consider at all in buying protein to balance a ration made up of home-grown fodder.

It will also be noticed that the percentages of fat in these feeds are not very unlike, ranging between 1.4 and 5.5 per cent., with the exception of cotton-seed meal, old process linseed meal, hominy chops and buckwheat middlings, so that a rough comparison of the feeds can be made, *taking account of protein alone*, as that is the ingredient which the feeder is chiefly concerned in getting.

Such a comparison would show the following:

If 20 pounds of Protein in Cotton Seed Meal cost .....	\$0.65
Then 20 pounds of Protein in Atlantic Gluten Meal costs about ..	.70
"        "        Linseed Meals        "        "        --	.82
"        "        other Gluten Meals    "        "        --	.88
"        "        Gluten Feeds          "        "        --	.93
"        "        Wheat and Rye Feeds and H. O.	
Dairy Feed cost about .....	1.23
"        "        Corn and Oat Feeds costs about...	2.54-2.91

The above is not intended to do more than make a rough but practically just statement of the *comparative* cost of protein in the several classes of feeding-stuffs. Of course all feeds contain other valuable food ingredients besides protein and fat, but they are not ingredients which the feeder needs to buy.

As a general rule, he cannot afford to buy anything belonging in class 5. Home-grown corn meal makes anything in this group superfluous.

It is the part of economy to raise all the corn meal which is needed at home, not to buy anything to balance the cattle ration containing less protein than wheat feeds, and to let all conditional and medicinal cattle foods alone.

"Cheap" and low grade oat feeds do not contain what the feeder needs to buy for his stock, and they are therefore worthless to him.

TABLE II. — COMMERCIAL FEEDS ARRANGED ACCORDING TO THE PERCENTAGES OF PROTEIN IN THEM.

	Protein. Per cent.	Fat. Per cent.	Cost. Per ton.
Cotton Seed Meal .....	44.4	9.8	\$28.80
Atlantic Gluten Meal.....	42.8	1.4	30.00
New Process Linseed Meal ....	39.0	1.8	30.00
Chicago Gluten Meal.....	36.0	3.4	33.30
Cream Gluten Meal .....	34.5	1.3	28.50
Old Process Linseed Meal.....	34.4	7.7	30.50
Buckwheat Middlings .....	30.7	8.2	20.00
Marshalltown Gluten Feed.....	27.7	3.6	25.00
Buffalo Gluten Feed .....	26.6	3.5	24.70
Waukegan Gluten Feed .....	26.6	4.2	25.00
Pekin Gluten Feed.....	26.2	3.5	24.00
Geneva Gluten Feed .....	26.2	3.8	24.00
Davenport Gluten Feed.....	25.7	4.2	23.00
Nat'l. Starch Co.'s Gluten Feed..	25.4	3.1	25.00
Spring Wheat Middlings.....	19.7	5.5	22.10
H. O. Dairy Feed .....	19.7	4.1	25.30
Spring Wheat Mixed Feed.....	18.5	5.1	22.20
Winter Wheat Middlings .....	18.0	5.0	22.75
Winter Wheat Mixed Feed.....	17.5	4.7	22.20
Spring Wheat Bran.....	17.3	4.7	21.06
Winter Wheat Bran .....	16.3	4.5	21.80
Rye Feed.....	15.8	3.0	24.10
Quaker Dairy Feed .....	13.6	3.3	22.00
H. O. Horse Feed.....	13.0	4.3	25.00
Corn, Oats and Barley.....	12.6	4.9	25.20
Hominy Feed.....	11.4	8.5	24.45
Corn Bran Sugar Feed.....	11.0	4.1	19.75
Provender .....	10.6	4.3	24.00
Victor Corn and Oat Feed.....	10.3	4.1	23.25
Corn Meal.....	9.7	4.1	26.70
De-Fi Oat Feed.....	9.3	3.1	23.66
Boss Corn and Oat Feed.....	8.9	3.5	26.00
Vim Oat Feed .....	7.9	2.9	18.00
Royal Oat Feed.....	6.3	2.2	17.00

## THE WEIGHT OF ONE QUART OF VARIOUS FEED- ING-STUFFS.

The following table gives the weight of one quart of the feeds named, and is useful to calculate the weight of grain ration fed, from the measure which is almost universally used on farms.

This table was prepared by Mr. H. G. Manchester of West Winsted.

TABLE III.—THE AVERAGE WEIGHT OF ONE QUART OF EACH OF THE  
FEEDS NAMED.

BY H. G. MANCHESTER, WEST WINSTED.

	Pounds.
Cotton Seed Meal .....	1.5
Linseed Meal, old process .....	1.1
Gluten Meal .....	1.7
Gluten Feed .....	1.2
Wheat Bran, coarse .....	0.5
Wheat Middlings, coarse .....	0.8
Wheat Middlings, fine .....	1.1
Mixed Wheat Feed .....	0.6
Corn Meal .....	1.5
Oats .....	1.2
Rye Bran .....	0.6
H. O. Dairy Feed .....	0.7
Victor Corn and Oat Feed .....	0.7

### SUMMARY.

It appears from the foregoing discussion and tables of analyses,

1. Cotton-seed meal, linseed meal, the gluten meals and feeds, and the factory mixed feeds of the American Cereal Co. and the H. O. Company are, as a rule, sold with a guaranteed percentage of protein and fat as is required by the state law. On the other hand, the wheat feeds, and the corn feeds—other than those named above—as well as most other feeds, are, as a rule, sold without guarantees, which is contrary to law.

2. The only evidence of deliberate fraud in the feed market which is shown by the analyses, is the mixing of finely ground

corn cobs with wheat feed. The brand of one of these mixtures of cobs and wheat is "Choice Eclipse Mixed Feed," sold by the W. R. Mumford Co., 528 Rialto Bldg., Chicago, Ill. The other, "C Mixed Feed," was sold by D. C. Comstock, Providence, R. I.

3. There are in the feed market a considerable number of very inferior oat feeds, and mixed corn and oat feeds, which contain a large proportion of hulls and chaff, and which cannot profitably be used by the stock feeder at any price.

4. The dairyman's chief concern in buying feeds to supplement his farm supply of corn, stover, hay, etc., should be to buy, on the most reasonable terms, protein in digestible and palatable forms. Seldom will it pay him to buy any feed containing less than 12 to 15 per cent. of crude protein.



TABLE IV.—ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
<i>Cotton Seed Meal.</i>			
4319	Cotton Seed Meal.....	Hunter Bros., St. Louis, Mo.....	Bridgeport, Wm. Terry & Co....
4524	" ".....	J. E. Soper & Co., Boston, Mass.....	Middletown, Meech & Stoddard
2438	" ".....	G. B. Robinson, Jr., New York.....	New Haven, R. G. Davis.....
4303	" ".....	Independent Cotton Oil Co., Memphis.....	Abner Hendee...
4362	" "Dixie Brand	Humphreys, Goodwin & Co., Memphis.....	New Milford, T. Soule & Co....
4515	" ".....	American Cotton Oil Co., Brinkley, Ark.....	Willimantic, H. A. Bugbee....
			Average of the above 6 analyses
			Average digestible.....
<i>New Process Linseed Meal.</i>			
4320	Linseed (Oil) Meal.....	Not known.....	Bridgeport, W. M. Terry & Co....
4317	" ".....	Not known.....	Wheeler & Howe..
4309	Linseed Meal.....	Not known.....	Hamden, Ira W. Beers .....
2439	" (Oil) Meal.....	Not known.....	New Haven, R. G. Davis.....
<i>Linseed Meal, Old Process.</i>			
4283	Lins'd Meal, Square Brand	Not known.....	New Haven, J. T. Benham.....
4302	" ".....	L. G. F. Co.....	Abner Hendee...
4413	" ".....	American Linseed Co., Chicago.....	New London, Arnold Rudd....
4545	" ".....	Mann Bros. & Co., Buffalo, N. Y.....	Rockville, Edward White.....
			Average of the above 4 analyses
			of New Process linseed meal.
			Average digestible.....
			Average of the above 4 analyses
			of Old Process linseed meal.
			Average digestible.....
WHEAT PRODUCTS.			
<i>Bran from Winter Wheat.</i>			
4307	Bran, Canadian.....	C. M. Cox & Co., Boston.....	Hamden, Ira W. Beers .....
4290	" White.....	" " ".....	New Haven, J. T. Benham.....
4451	" Winter Wheat.....	Stott's Flour Mills, Detroit, Mich.....	Yantic, A. R. Manning & Co....
4350	" Michigan.....	Valley City Milling Co., Grand Rapids, Mich....	New Milford, Ackley, Hatch & Marsh.....
4397	" Choice.....	Voigt Milling Co., Grand Rapids, Mich.....	Waterbury, Platt's Mill Co....
			Average of the above 5 analyses
			Average digestible.....
<i>Bran from Spring Wheat.</i>			
4447	Bran.....	.....	Greenville, B. H. Palmer.....
4487	" Banner.....	Banner Milling Co., Buffalo, N. Y.....	Willimantic, W. D. Grant.....
4440	" ".....	Bay State Milling Co., Winona, Minn.....	Norwich, A. A. Beckwith.....
4287	" Badger.....	Bergen Anderson Co., Milwaukee.....	New Haven, J. T. Benham.....

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4319	8.46	7.31	45.75	9.90	19.08	9.50	\$28.00
4524	7.74	6.40	45.37	5.39	25.94	9.16	29.00
2438	8.51	6.41	43.12	6.69	26.42	8.85	28.00
4303	8.56	7.27	43.56	5.46	23.79	11.36	32.00
4362	8.07	7.16	45.31	6.45	22.72	10.29	28.00
4515	6.74 8.01	7.26 6.97	43.25 44.39	9.07 7.16	23.64 23.60	10.04 9.87	28.00
4320	10.19	5.35	39.07	4.01	14.40	9.17	
4317	10.15	5.30	44.00	5.24	33.69	1.53	30.00
4309	9.87	5.40	37.31	9.74	36.03	1.47	35.00
2439	10.41	5.58	39.87	8.46	34.02	2.38	26.00
			39.81	8.35	34.42	1.43	20.00
4283	9.84	5.42	30.81	9.56	36.82	7.55	29.00
4302	10.16	5.40	30.75	9.71	35.93	8.05	32.00
4413	9.47	4.80	37.81	8.14	32.19	7.59	31.00
4545	9.22	4.69	38.25	7.64	32.79	7.41	36.00
	10.15	5.41	40.25 34.21	7.95 6.36	34.54 29.70	1.70 1.55	
	9.67	5.08	34.41 30.62	8.76 4.99	34.43 26.86	7.65 6.81	
4307	8.94	6.04	14.75	10.24	55.59	4.44	22.00
4290	9.40	6.01	15.25	9.04	55.66	4.64	21.00
4451	9.15	5.73	15.87	9.66	55.32	4.27	22.00
4350	9.36	6.38	18.06	8.51	53.07	4.62	21.00
4397	8.76 9.12	5.87 6.01	17.37 16.26	8.39 9.17	55.04 54.93	4.57 4.51	23.00
			12.68	2.66	37.89	3.07	
4447	8.37	6.15	16.87	11.29	52.36	4.96	22.00
4487	8.45	5.57	17.50	9.81	53.74	4.93	19.00
4440	8.27	6.59	18.44	11.79	49.59	5.32	22.00
4287	9.36	6.12	17.56	10.54	51.50	4.92	19.50

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4478	Bran -----	L. Christian & Co., Min- neapolis	Putnam, Bosworth Bros.-----
4436	" -----	New Prague Milling Co., Minnesota	Norwich, Norwich Grain Co.----
4474	" Broad Flake -----	New Prague Milling Co., Minnesota	Danielson, Quinnebaug Store----
4471	" -----	Parker-Leland Mill Co., Winnebago, Minn.	Waldo Bros.-----
4359	" -----	Pillsbury, Minneapolis	New Milford, F. R. Green -----
4333	" -----	" "	Stamford, Ingersoll & Bro.-----
4372	" Coarse -----	Sheffield Milling Co., Faribault, Minn.	Bethel, Judd & Judd -----
4308	" -----	Simpson, Hendee & Co., N. Y.	Hamden, Ira W. Beers -----
4384	" Coarse -----	Washburn-Crosby Co., Minneapolis	Litchfield, Marsh & Newcomb--
4288	" -----	Washburn-Crosby Co., Minneapolis	New Haven, J. T. Benham-----
4412	" -----	Washburn-Crosby Co., Minneapolis	New London, Arnold Rudd-----
4363	" -----	Washburn-Crosby Co., Minneapolis	New Milford, T. Soule & Co.----
4466	" Snow's Flaky -----	E. S. Woodworth & Co., Minneapolis	Danielson, C. A. Young-----
	<i>Bran, unclassified.</i>		Average of the above 17 analyses
4314	Bran -----		Bridgeport, Wheeler & Howe----
4429	" "F" -----	Narragansett Middling Co., R. I.	Stonington, S. H. Chesebro----
	<i>Middlings, Winter Wheat</i>		
4419	-----	N. L. Berry & Co., Provi- dence, R. I.	New London, E. H. Caulkins----
4386	-----	Dow & King, Pittsfield, Ill.	Litchfield, Marsh & Newcomb----
4407	-----	Isaac Harter Co., Toledo, Ohio	Guilford, G. F. Walter-----
4421	-----	Hecker-Jones-Jewell Co., New York	New London, E. Bishop-----
4416	-----	Hecker-Jones-Jewell Co., New York	Beebe & Bragan-----
4411	-----	Hecker-Jones-Jewell Co., New York	Arnold Rudd-----
4334	-----	Hecker-Jones-Jewell Co., New York	Stamford, Ingersoll & Bro.-----
4414	-----	Hunter Bros., St. Louis	New London, Arnold Rudd-----
4311	-----	Simpson, Hendee & Co., New York	Hamden, Ira W. Beers-----
4450	Fine White -----	Stott's Flour Mills, De- troit, Mich.	Yantic, A. R. Manning & Co.----
4435	Choice -----	Valley City Mill Co., Grand Rapids	Norwich, Norwich Grain Co.----
4396	" -----	Voigt Milling Co., Grand Rapids	Waterbury, Platt's Mill Co.-----
			Average of above 12 analyses
			Average digestible -----

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4478	8.55	6.77	18.62	10.31	50.61	5.14	\$22.00
4436	8.22	6.85	17.50	11.96	50.27	5.20	23.00
4474	8.21	6.58	18.12	10.99	50.95	5.15	21.00
4471	8.09	5.91	17.31	10.76	54.04	3.89	21.00
4359	9.44	6.03	17.19	11.11	51.35	4.88	21.00
4333	8.96	7.50	16.56	11.49	50.81	4.68	21.00
4372	8.87	6.26	16.62	12.56	51.85	3.84	22.00
4308	9.28	6.65	16.31	9.51	53.79	4.46	20.50
4384	8.96	6.20	17.06	10.79	52.26	4.73	23.00
4288	9.21	6.28	17.62	10.25	51.44	5.20	20.00
4412	8.65	6.25	16.87	11.54	52.14	4.55	20.00
4363	8.72	6.92	17.44	11.89	51.12	3.91	21.00
4466	8.53	6.51	16.62	11.45	52.27	4.62	20.00
	8.71	6.42	17.31	11.06	51.77	4.73	
			13.50	3.21	35.71	3.22	
4314	9.50	6.35	17.81	9.69	51.62	5.03	20.00
4429	8.22	6.23	17.25	11.64	51.74	4.92	22.00
4419	9.75	3.91	18.50	4.99	58.19	4.66	23.00
4386	9.18	4.52	17.19	6.39	57.78	4.94	24.00
4407	9.68	3.95	17.06	5.51	59.04	4.76	23.00
4421	8.89	5.13	18.81	8.21	53.81	5.15	21.00
4416	8.80	4.90	18.62	9.29	53.04	5.35	21.00
4411	9.15	4.99	17.75	9.46	53.50	5.15	21.00
4334	9.71	4.68	18.87	7.24	54.67	4.83	22.00
4414	9.20	4.20	17.19	5.16	58.06	6.19	24.00
4311	10.13	4.05	17.87	5.34	57.91	4.70	23.00
4450	10.10	3.75	18.69	3.86	58.63	4.97	23.00
4435	9.87	4.87	17.50	5.29	57.74	4.73	23.00
4396	10.27	4.07	17.50	5.16	58.47	4.53	25.00
	9.56	4.42	17.96	6.32	56.75	4.99	
			14.37	2.11	45.96	4.29	

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
	<i>Middlings, Spring Wheat.</i>		
4439	-----	Bay State Milling Co., Winona, Minn. ....	Norwich, A. A. Beckwith. ....
4484	-----	L. Christian & Co., Min- neapolis .....	Putnam, Bosworth Bros. ....
4457	Daisy -----	Daisy Roller Mills, Mil- waukee .....	Jewett City, J. E. Leonard & Son.
4477	-----	J. G. Davis Co., Roches- ter, N. Y. ....	Danielson, Quinnebaug Store ..
4423	Colonial -----	Miner-Hillard Mill Co., Wilkesbarre .....	Groton, Groton Grain Co. ....
4519	-----	New Prague Milling Co., New Prague, Minn. ....	Willimantic, H. A. Bugbee. ....
4433	-----	Northwestern Con. Mill- ing Co., Minn. ....	Mystic, J. L. Manning & Co. ....
4284	-----	Northwestern Con. Mill- ing Co., Minn. ....	New Haven, J. T. Benham. ....
4492	-----	Northwestern Con. Mill- ing Co., Minn. ....	Willimantic, E. A. Buck & Co. ..
4381	" B " -----	Pillsbury, Minneapolis ..	Danbury, O. H. Meeker .....
4448	" -----	" " .....	Greenville, B. H. Palmer .....
4366	" -----	" " .....	New Milford, T. Soule & Co. ....
4360	" A " -----	" " .....	F. R. Green .....
4345	" -----	" " .....	West Cornwall, Smith & Sons. ....
4367	-----	Sheffield Milling Co., Faribault, Minn. ....	Bethel, Johnston & Morrison ....
4382	-----	Sheffield Milling Co., Faribault, Minn. ....	Danbury, O. H. Meeker .....
4310	-----	Simpson, Hendee & Co., New York .....	Hamden, Ira W. Beers .....
4459	-----	Urban Roller Mill Co., Buffalo .....	Jewett City, J. E. Leonard & Son
4453	Standard -----	Washburn-Crosby Co., Minneapolis .....	Yantic, A. R. Manning & Co. ....
4370	Snow's Cream Flour .....	Woodworth & Co., Min- neapolis .....	Bethel, Johnston & Morrison ....
	<i>Middlings, unclassified.</i>		Average of above 20 analyses ..
4321	-----	-----	Average digestible. ....
4318	-----	-----	Bridgeport, W. M. Terry & Co. ....
4376	Dexter -----	Chapin & Co. ....	Wheeler & Howe .....
4476	Standard -----	-----	Danbury, F. C. Benjamin & Co. ..
4301	-----	-----	Danielson, Quinnebaug Store ..
4462	-----	D. W. Godstock & Co., New York .....	New Haven, Abner Hendee .....
4332	-----	C. M. Cox, Boston .....	Plainfield, J. P. Kingsley & Son.
4428	-----	Naragansett Milling Co., R. I. ....	So. Norwalk, M. T. Hatch .....
	<i>Mixed Feed from Winter Wheat.</i>		Stonington, S. H. Cheseboro ....
4544	Acme Feed -----	Acme Milling Co., Indian- apolis .....	Rockville, Edward White. ....
4449	" -----	Acme Milling Co., Indian- apolis .....	Yantic, A. R. Manning & Co. ....



## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4439	8.69	5.28	21.25	7.24	51.14	6.40	\$22.00
4484	9.16	6.33	20.19	7.94	50.91	5.47	21.00
4457	9.74	4.70	19.69	6.39	54.64	4.84	23.00
4477	9.75	3.55	19.50	4.84	57.76	4.60	21.00
4423	8.52	3.63	21.19	6.04	52.87	7.75	24.00
4519	9.52	4.87	19.56	8.36	52.42	5.27	22.00
4433	9.07	5.02	18.19	9.01	53.27	5.44	23.00
4284	9.59	4.85	18.69	9.04	52.30	5.53	20.00
4492	8.67	5.27	17.12	11.14	52.37	5.43	21.00
4381	9.28	5.07	18.37	9.76	52.62	4.90	21.00
4448	8.80	5.27	18.44	10.04	52.09	5.36	22.00
4366	9.17	4.47	19.75	8.94	52.41	5.26	21.00
4360	9.25	4.25	19.87	6.26	54.94	5.43	23.00
4345	10.17	4.13	19.69	6.49	54.49	5.03	24.00
4367	10.18	3.78	20.50	4.71	55.34	5.49	24.00
4382	9.95	3.90	20.19	4.36	56.02	5.58	22.00
4310	10.22	4.41	19.94	7.74	51.82	5.87	21.00
4459	9.71	4.01	19.31	6.04	55.89	5.04	22.00
4453	9.29	4.78	19.94	7.76	53.01	5.22	21.00
4370	10.12	3.74	22.19	3.61	54.86	5.48	24.00
	9.44	4.57	19.68	7.29	53.55	5.47	
	-----	-----	15.74	2.43	43.38	4.70	
4321	9.55	4.39	18.69	9.64	52.83	4.90	22.50
4318	9.03	4.48	18.06	6.79	56.59	5.05	21.00
4376	8.95	4.82	20.25	7.06	53.25	5.67	22.00
4476	9.58	4.77	19.75	8.26	52.61	5.03	21.00
4301	8.71	4.57	19.19	6.71	55.45	5.37	25.00
4462	9.11	5.04	19.25	7.44	53.99	5.17	20.00
4332	9.46	3.32	21.87	3.24	56.92	5.19	25.00
4428	9.03	4.90	18.62	7.56	54.92	4.97	23.00
4544	8.19	5.73	17.50	7.71	56.01	4.86	23.00
4449	8.49	5.53	17.25	7.31	56.40	5.02	22.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4465	Buckeye Wheat Feed.....	American Cereal Co.....	Danielson, C. A. Young.....
4347	" " ".....	" " ".....	West Cornwall, Smith & Sons.....
4485	" " ".....	" " ".....	Willimantic, W. D. Grant.....
4452	Fancy Mixed Feed.....	E. W. Bailey & Co., Montpelier, Vt. ....	Yantic, A. R. Manning & Co.....
4399	Hoosier Mill Feed.....	Geo. T. Evans, Indianapolis.....	Ansonia, Ansonia Flour & Feed Co.....
4403	Mixed Feed.....	Isaac Harter Co., Toledo, Ohio.....	Ansonia, Ansonia Flour & Feed Co.....
4409	".....	Isaac Harter Co., Toledo, Ohio.....	Guilford, G. F. Walter.....
2437	".....	Isaac Harter Co., Toledo, Ohio.....	New Haven, R. G. Davis.....
4331	".....	Isaac Harter Co., Toledo, Ohio.....	So. Norwalk, M. T. Hatch.....
4286	".....	Hecker-Jones-Jewell Co., N. Y.....	New Haven, J. T. Benham.....
2436	".....	Hecker-Jones-Jewell Co., N. Y.....	R. G. Davis.....
4304	".....	Hecker-Jones-Jewell Co., N. Y.....	Abner Hendee.....
4550	Michigan Mixed Feed.....	Abner Hendee, New Haven.....	Avon, J. & H. Woodford.....
4479	Sunshine.....	Hunter Bros., St. Louis.....	Putnam, Bosworth Bros.....
4547	Mixed Feed.....	Kehlors Bros.....	Hartford, L. C. Daniels Grain Co.....
4463	Snow Flake.....	Lawrenceburg Roller Mills Co., Ind.....	Danielson, C. A. Young.....
4354	".....	Lawrenceburg Roller Mills Co., Ind.....	New Milford, Ackley, Hatch & Marsh.....
4518	".....	Lawrenceburg Roller Mills Co., Ind.....	Willimantic, H. A. Bugbee.....
4404	Mixed Feed.....	Lexington Roller Mills Co., Ky.....	Ansonia, Ansonia Flour & Feed Co.....
4539	".....	J. E. M. Milling Co., Frankfort, Ky.....	New Britain, Hugh Reynolds.....
4534	King Feed.....	R. P. Moore Milling Co., Princeton, Ind.....	Wallingford, E. E. Hall.....
4348	Mixed Feed.....	Rex Mill Co.....	West Cornwall, Smith & Sons.....
4351	Farmers' Favorite.....	Valley City Milling Co., Grand Rapids, Mich.....	New Milford, Ackley, Hatch & Marsh.....
4491	".....	Valley City Milling Co., Grand Rapids, Mich.....	Stafford, E. C. Dennis.....
	<i>Mixed Feed from Spring Wheat.</i>		Average of the above 26 analyses
			Average digestible.....
4375	Boston.....	Imperial Milling Co., Duluth, Minn.....	Danbury, F. C. Benjamin & Co.....
4540	Jersey.....		New Britain, M. D. Stanley.....
4475	".....	New Prague Milling Co., Minn.....	Danielson, Quinnebaug Store.....
4358	Fancy.....	Pillsbury, Minneapolis.....	New Milford, F. R. Green.....
4343	".....	" ".....	West Cornwall, Smith & Sons.....
4380	Superior.....	Washburn-Crosby Co.....	Danbury, O. H. Meeker.....

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4465	9.41	4.84	18.31	7.11	55.87	4.46	\$22.00
4347	9.67	5.08	17.75	7.49	55.97	4.04	23.00
4485	8.66	5.30	18.56	7.26	55.48	4.74	21.00
4452	9.01	5.89	18.50	7.76	53.96	4.88	22.00
4399	8.85	5.71	17.44	7.69	55.85	4.46	22.00
4403	8.75	5.52	17.50	7.51	56.19	4.53	22.00
4409	9.07	5.90	17.56	7.91	54.75	4.81	23.00
2437	9.57	5.92	17.00	7.36	55.17	4.98	22.00
4331	8.95	5.93	17.87	7.74	54.79	4.72	22.00
4286	9.61	5.38	17.37	8.89	54.18	4.57	21.00
2436	9.85	5.79	17.37	8.69	53.42	4.88	22.00
4304	9.83	5.41	18.12	8.06	53.76	4.82	21.00
4550	8.71	5.80	17.12	8.29	55.69	4.39	22.00
4479	8.69	4.88	17.50	6.86	57.39	4.68	23.00
4547	8.63	6.33	17.37	8.31	54.80	4.56	24.00
4463	9.08	5.73	18.25	7.16	54.88	4.90	22.00
4354	9.29	6.12	18.12	7.51	54.21	4.75	23.00
4518	9.04	5.84	18.00	7.76	54.55	4.81	22.00
4404	9.37	5.53	15.87	7.31	57.01	4.91	22.00
4539	8.44	6.18	16.81	6.89	57.00	4.68	22.00
4534	8.55	5.60	17.31	7.14	56.63	4.77	22.00
4348	10.15	5.90	17.19	8.71	53.84	4.21	23.00
4351	9.60	5.37	16.75	8.26	55.44	4.58	22.00
4491	9.34	5.33	16.94	7.41	56.35	4.63	22.00
	9.11	5.64	17.51	7.70	55.36	4.68	
			14.01	1.93	43.18	3.65	
4375	9.88	4.72	18.75	7.71	54.40	4.54	22.00
4540	8.91	5.16	18.62	8.46	54.04	4.81	24.00
4475	8.62	5.69	19.44	8.84	51.49	5.92	22.00
4358	9.80	4.75	18.62	7.09	54.88	4.86	22.00
4343	9.50	4.76	18.87	6.94	54.33	5.60	22.00
4380	8.67	5.88	17.19	8.79	54.14	5.33	22.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4385	Superior.....	Washburn-Crosby Co.....	Litchfield, Marsh & Newcomb....
4357	".....	".....	New Milford, F. R. Green.....
4488	".....	".....	Stafford, E. C. Dennis.....
			Average of the above 9 analyses.
			Average digestible.....
	<i>Mixed Feed, unclassified.</i>		
4542	Monogram.....	.....	Hartford, E. P. Yates & Co.....
4373	".....	.....	Bethel.....
2447	J. L. C.....	Chapin & Co., Boston....	North Haven, Co-op. Feed Co....
2444	Star and Crescent, Ground Wheat Feed..	".....	".....
4514	Mixed Feed.....	E. Crosby & Co.....	Willimantic, E. A. Buck & Co....
4306	".....	Simpson, Hendee & Co., New York.....	Hamden, Ira W. Beers.....
	<i>Mixed Feed, adulterated.</i>		
4295	Choice Eclipse Mixed Feed.....	W. R. Mumford, Chicago..	Branford, S. V. Osborn.....
4406	Choice Eclipse Mixed Feed.....	.....	Guilford, F. H. Rolf.....
4470	"C" Mixed Feed.....	D. C. Comstock, Provi- dence, R. I.....	Danielson, Waldo Bros.....
	CORN PRODUCTS.		
	<i>Corn Meal.</i>		
2312	Corn Meal.....	Ira W. Beers, Hamden....	Hamden, Ira W. Beers.....
4434	".....	J. L. Manning & Co., Mystic.....	Mystic, J. L. Manning & Co....
			Average of the above 2 analyses.
			Digestible.....
4520	Atlantic Gluten Meal....	Atlantic Starch Works, Westport, Conn. ....	Middletown, Meech & Stoddard..
	<i>Gluten Meal.</i>		
4422	Cream Gluten Meal.....	Chas. Pope Glucose Co., Chicago, Ill.....	Groton, Groton Grain Co.....
2448	".....	Chas. Pope Glucose Co., Chicago, Ill.....	North Haven, Jos. Pierpont....
			Average of the above 2 analyses.
			Average digestible.....
4456	Chicago Gluten Meal....	Glucose Sugar Refining Co., Chicago, Ill.....	Jewett City, J. E. Leonard & Son
4352	".....	Glucose Sugar Refining Co., Chicago, Ill.....	New Milford, Ackley, Hatch & Marsh.....
4395	".....	Glucose Sugar Refining Co., Chicago, Ill.....	Waterbury, The Platt Mills Co. .
			Average of the above 3 analyses.
			Average digestible.....
	<i>Gluten Feed.</i>		
4315	Buffalo Gluten Feed....	Glucose Sugar Refining Co., Chicago, Ill.....	Bridgeport, Wheeler & Howe....
4408	".....	Glucose Sugar Refining Co., Chicago, Ill.....	Guilford, G. F. Walter.....
4305	".....	Glucose Sugar Refining Co., Chicago, Ill.....	Hamden, Ira W. Beers.....

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4385	8.80	5.80	17.69	9.29	53.08	5.34	\$23.00
4357	9.56	5.58	18.44	9.34	52.31	4.77	22.00
4488	9.28	5.05	19.25	8.29	53.27	4.86	21.00
	<b>9.22</b>	<b>5.26</b>	<b>18.54</b>	<b>8.31</b>	<b>53.56</b>	<b>5.11</b>	
			14.83	2.08	41.78	3.99	
4542	9.23	4.68	18.94	6.36	56.35	4.44	25.00
4373	9.62	4.59	19.44	5.81	55.99	4.55	23.00
2447	9.90	4.77	17.12	6.74	57.10	4.37	22.00
2444	9.95	4.44	17.87	5.94	57.45	4.35	22.00
4514	9.29	4.85	18.56	7.89	54.43	4.98	21.00
4306	9.34	5.94	18.19	7.71	54.00	4.82	21.00
4295	8.62	4.53	12.50	14.59	56.27	3.49	22.00
4406	8.23	4.74	12.44	17.07	54.17	3.35	23.00
4470	8.07	4.73	13.75	13.54	56.34	3.57	22.00
2312	11.61	1.32	9.50	1.95	71.57	4.05	25.50
4434	10.85	1.34	9.87	1.65	72.19	4.10	28.00
	<b>11.23</b>	<b>1.33</b>	<b>9.68</b>	<b>1.80</b>	<b>71.89</b>	<b>4.07</b>	
			6.57		68.29	3.74	
4520	<b>7.71</b>	<b>1.01</b>	<b>42.75</b>	<b>1.67</b>	<b>45.48</b>	<b>1.38</b>	30.00
	----	----	37.62		40.93	1.30	
4422	10.11	0.89	36.75	0.84	49.95	1.46	29.00
2448	9.17	0.89	32.31	1.36	55.04	1.23	28.00
	<b>9.64</b>	<b>0.89</b>	<b>34.53</b>	<b>1.10</b>	<b>52.50</b>	<b>1.34</b>	
			30.38		47.25	1.25	
4456	8.61	0.99	35.25	1.49	50.02	3.64	35.00
4352	8.71	1.36	35.75	1.99	48.36	3.83	30.00
4395	8.87	0.87	36.94	1.79	48.74	2.79	35.00
	<b>8.73</b>	<b>1.07</b>	<b>35.98</b>	<b>1.76</b>	<b>49.04</b>	<b>3.42</b>	
			31.66		44.14	3.21	
4315	8.83	1.89	25.87	7.26	52.89	3.26	25.00
4408	8.72	2.24	26.75	7.29	51.30	3.70	25.00
4305	9.34	1.86	26.37	6.96	52.32	3.15	24.00



TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4522	Buffalo Gluten Feed....	Glucose Sugar Refining Co., Chicago, Ill.....	Middletown, Meech & Stoddard..
4285	" " ----	Glucose Sugar Refining Co., Chicago, Ill.....	New Haven, J. T. Benham.....
4415	" " ----	Glucose Sugar Refining Co., Chicago, Ill.....	New London, Beebe & Bragan..
4516	" " ----	Glucose Sugar Refining Co., Chicago, Ill.....	Willimantic, H. A. Bugbee..... Average of the above 7 analyses. Average digestible .....
4530	Davenport Gluten Feed..	Glucose Sugar Refining Co., Chicago, Ill.....	East Haven, Hawkins & Forbes..
2445	" " --	Glucose Sugar Refining Co., Chicago, Ill.....	North Haven, Co-op Feed Co. ... Average of the above 2 analyses. Average digestible .....
4548	Marshalltown Gluten Feed .....	Glucose Sugar Refining Co., Chicago, Ill.....	Avon, J. & H. Woodford.....
4536	Marshalltown Gluten Feed .....	Glucose Sugar Refining Co., Chicago, Ill.....	Meriden, S. A. Billings..... Average of the above 2 analyses. Average digestible .....
4294	Gluten Feed .....	National Starch Co., Glen Cove, N. Y.....	Branford, S. V. Osborn.....
2435	" .....	National Starch Co., Glen Cove, N. Y.....	New Haven, R. G. Davis.....
4300	" .....	National Starch Co., Glen Cove, N. Y.....	Abner Hendee.....
4410	" .....	National Starch Co., Glen Cove, N. Y.....	New London, Arnold Rudd.....
4443	" .....	National Starch Co., Glen Cove, N. Y.....	Norwich, A. A. Beckwith..... Average of the above 5 analyses. Average digestible .....
4379	Waukegan Gluten Feed..	U. S. Sugar Refining Co., Waukegan, Ill.....	Danbury, O. H. Meeker .....
4468	" " --	U. S. Sugar Refining Co., Waukegan, Ill.....	Danielson, Waldo Bros. .... Average of the above 2 analyses. Average digestible .....
4417	Geneva Gluten Feed ....	Chapin & Co., Boston, Mass. ....	New London, E. H. Caulkins ... Average digestible .....
4469	Pekin Gluten Feed.....	Ill. Sugar Refining Co., Pekin, Ill.....	Danielson, Waldo Bros. ....
4383	" " ----	Ill. Sugar Refining Co., Pekin, Ill.....	Litchfield, Marsh & Newcomb... Average of the above 2 analyses. Average digestible .....
2446	Germ Oil Meal.....	Glucose Sugar Refining Co., Chicago, Ill.....	North Haven, Co-op Feed Co....
4535	" " ----	Glucose Sugar Refining Co., Chicago, Ill.....	Wallingford, E. E. Hall..... Average of the above 2 analyses.

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4522	8.21	2.16	27.81	7.19	51.09	3.54	\$27.00
4285	9.10	1.77	26.62	7.54	51.47	3.50	23.00
4415	8.47	1.77	26.62	7.46	51.85	3.83	24.00
4516	8.16 8.69	2.64 2.05	26.19 26.60 22.87	7.26 7.28 5.68	52.16 51.87 46.15	3.59 3.51 2.93	25.00
4530	8.90	2.14	26.25	6.14	52.31	4.26	23.00
2445	9.62 9.26	1.76 1.95	25.12 25.68 22.08	6.94 6.54 5.10	52.37 52.34 46.58	4.19 4.23 3.55	23.00
4548	8.71	1.40	26.87	7.11	52.27	3.64	24.00
4536	7.75 8.23	2.80 2.10	28.44 27.66 23.78	7.11 7.11 5.55	50.31 51.29 45.65	3.59 3.61 3.03	26.00
4294	9.09	0.63	25.37	5.64	56.37	2.90	25.00
2435	8.78	0.63	23.62	5.74	58.21	3.02	24.00
4300	8.39	0.67	23.37	5.84	59.19	2.54	25.00
4410	7.47	0.56	23.69	7.45	57.92	2.91	25.00
4443	9.94 8.74	0.76 0.65	30.81 25.37 21.81	4.69 5.87 4.57	49.86 56.31 50.11	3.94 3.06 2.57	25.00
4379	8.62	1.19	26.69	6.76	52.57	4.17	25.00
4468	8.65 8.64	1.32 1.26	26.56 26.62 22.89	7.16 6.96 5.43	52.03 52.30 46.54	4.28 4.22 3.54	25.00
4417	7.91	0.96	26.19 22.52	8.31 6.48	52.87 47.05	3.76 3.16	24.00
4469	7.41	0.88	25.56	7.76	55.44	2.95	25.00
4383	6.85 7.13	0.92 0.90	26.75 26.15 22.43	7.24 7.50 5.85	54.19 54.82 48.78	4.05 3.50 2.94	23.00
2446	10.15	2.35	22.25	9.19	46.53	9.53	25.00
4535	9.49 9.82	2.37 2.36	22.00 22.12	9.31 9.25	47.43 46.98	9.40 9.47	24.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4400	Corn Bran Sugar Feed	J. E. Soper & Co., Boston, Mass.	Ansonia, Ansonia Flour & Grain Co.
4526	" "	J. E. Soper & Co., Boston, Mass.	Middletown, Meech & Stoddard.
2442	" "	J. E. Soper & Co., Boston, Mass.	New Haven, R. G. Davis
	<i>Hominy Feed.</i>		Average of the above 3 analyses.
4461	Hominy Chop	M. F. Barringer, Phila., Pa.	Plainfield, J. P. Kingsley & Son.
4430	Niagara Hominy Meal	Chapin & Co., Boston, Mass.	Mystic, J. L. Manning & Co.
4418	" "	Chapin & Co., Boston, Mass.	New London, E. H. Caulkins.
2443	" "	Chapin & Co., Boston, Mass.	North Haven, Co-op. Feed Co.
4533	Diamond Hominy Feed	Chapin & Co., Boston, Mass.	Wallingford, E. E. Hall
4538	Hominy Feed	C. M. Cox, Boston, Mass.	Berlin, J. C. Lincoln
4464	Hominy Chop	" "	Danielson, C. A. Young
4326	Hominy Feed	Hollister, Chase & Co., New York	Bridgeport, Wheeler & Co.
4521	Hominy Chop	Hollister, Chase & Co., New York	Middletown, Meech & Stoddard.
4546	Hominy Feed	Hunter Bros., St. Louis, Mo.	East Hartford, W. J. Cox
4353	"	Husted Milling Co., Buffalo, N. Y.	New Milford, Ackley, Hatch & Marsh
4528	Hominy Chop	T. F. Lane & Co., New York	Middletown, Coles & Co.
4330	"	T. F. Lane & Co., New York	So. Norwalk, Manuel T. Hatch.
4336	"	T. F. Lane & Co., New York	Stamford, E. E. Scofield
4388	Hominy Meal	Miner-Hillard Milling Co., Wilkesbarre	Thomaston, L. E. Blackmer.
4393	"	Miner-Hillard Milling Co., Wilkesbarre	Waterbury, D. L. Dickinson
4455	Hominy Chop	Miner Mills Co., Miner Mills, Pa.	Jewett City, J. E. Leonard & Son
4427	"	Narragansett Milling Co., R. I.	Stonington, S. H. Chesebro.
2441	"	W. M. Payne, Harlem, N. Y.	New Haven, R. G. Davis
4424	"	D. S. Shellburger, Decatur, Ill.	Groton, Groton Grain Co.
4512	"		Willimantic, E. A. Buck & Co.
			Average of the above 21 analyses
			Average digestible
4460	Cerelene Feed No. 2	M. F. Barringer, Phila., Pa.	Plainfield, J. P. Kingsley & Son.
4401	Rye Feed	H. D. Stone Milling Co., Rochester, N. Y.	Ansonia, Ansonia Flour & Grain Co.

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4400	8.85	0.98	11.50	11.90	61.62	5.15	\$20.00
4526	6.56	0.95	10.62	13.65	65.04	3.18	20.00
2442	9.16 8.19	0.82 0.91	11.00 11.04	11.70 12.42	63.51 63.39	3.81 4.05	19.00
4461	8.35	2.82	11.50	4.34	63.93	9.06	22.50
4430	7.67	2.73	11.56	4.04	65.38	8.62	25.00
4418	7.41	2.86	11.81	5.19	63.21	9.52	24.00
2443	9.41	2.66	11.25	4.33	63.64	8.71	23.00
4533	8.48	2.43	10.56	4.59	66.41	7.53	24.00
4538	8.12	2.87	10.94	5.02	65.75	7.30	25.00
4464	8.69	2.56	10.94	4.89	65.37	7.55	23.00
4326	9.05	2.53	10.87	4.21	65.14	8.20	25.00
4521	8.42	2.83	11.69	4.64	63.35	9.07	25.00
4546	7.03	2.97	11.25	4.54	65.38	8.83	24.00
4353	7.84	2.61	11.12	5.46	64.97	8.00	26.00
4528	8.65	2.82	11.69	4.49	63.47	8.88	24.00
4330	9.32	2.53	11.50	4.56	63.79	8.30	25.00
4336	9.86	2.52	11.44	4.41	63.58	8.19	24.00
4388	8.90	2.52	11.25	4.19	64.95	8.19	26.00
4393	9.23	2.81	11.75	4.69	62.51	9.01	27.00
4455	9.27	2.90	12.00	2.84	63.80	9.19	24.00
4427	8.58	2.83	11.56	4.04	63.72	9.27	25.00
2441	9.48	2.71	11.50	4.55	63.22	8.54	24.00
4424	10.14	2.22	10.62	4.41	64.54	8.07	25.00
4512	7.88 8.66	2.76 2.69	11.56 11.35 8.74	4.29 4.46 3.66	64.20 64.30 61.09	9.31 8.54 6.92	23.00
4460	9.44	2.21	12.00	2.11	67.09	7.15	23.00
4401	9.98	3.26	15.75	3.54	64.46	3.01	25.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4296	Rye Feed .....	Abner Hendee, New Ha-	
4289	" .....	ven .....	Branford, S. V. Osborn .....
4297	" .....	H. D. Stone Milling Co.,	New Haven, J. T. Benham .....
2450	" .....	Rochester, N. Y. ....	Abner Hendee .....
4391	" .....	Smith, Northam & Co.,	
		Hartford .....	North Haven, Jos. Pierpont .....
		F. C. Slade & Son, Oak-	
		ville .....	Oakville, F. C. Slade & Son .....
4529	Malt Sprouts .....		Average of the above 5 analyses* .....
			Digestible .....
4473	Buckwheat Shucks .....	Quinnebaug Mills, Dan-	
4472	Buckwheat Middlings .....	ielson .....	Danielson, Quinnebaug Store .....
	<i>Various Mixed Feeds.</i>		" .....
4402	Provender .....	Ansonia Flour & Grain	Ansonia, Ansonia Flour & Grain
4371	" .....	Co., Ansonia .....	Co. ....
4292	" .....	Johnston & Morrison,	
		Bethel .....	Bethel, Johnston & Morrison .....
4322	" .....	S. V. Osborn & Co., Bran-	
4329	" .....	ford .....	Branford, S. V. Osborn & Co. ....
4313	" .....	W. M. Terry, Bridgeport.	Bridgeport, W. M. Terry .....
4467	" .....	Wheeler & Co., Bridge-	
4446	" .....	port .....	Wheeler & Co. ....
4458	" .....	Wheeler & Howe, Bridge-	
		port .....	Wheeler & Howe .....
4387	" .....	C. A. Young, Danielson.	Danielson, C. A. Young .....
		B. H. Palmer, Greenville.	Greenville, B. H. Palmer .....
		J. E. Leonard & Son,	
		Jewett City .....	Jewett City, J. E. Leonard & Son .....
4537	Sterling Provender .....	Marsh & Newcomb, Litch-	
		field .....	Litchfield, Marsh & Newcomb .....
4527	Provender .....	M. L. Crittenden, Buffalo,	Meriden, Meriden Grain & Feed
4525	" .....	N. Y. ....	Co. ....
4361	" .....	Coles & Co., Middletown	Middletown, Coles & Co. ....
4365	" .....	Meech & Stoddard, Mid-	
		dletown .....	Meech & Stoddard .....
2449	" .....	F. R. Green, New Milford	New Milford, F. R. Green .....
		T. Soule & Co., New Mil-	
		ford .....	T. Soule & Co. ....
4445	" .....	Smith, Northam & Co.,	
4437	" .....	Hartford .....	North Haven, Jos. Pierpont .....
		A. A. Beckwith, Norwich	Norwich, A. A. Beckwith .....
4483	" .....	Cutler Co., No. Wilbra-	
4490	" .....	ham, Mass. ....	Norwich Grain Co. ....
4335	" .....	Bosworth Bros., Putnam.	Putnam, Bosworth Bros. ....
4426	" .....	E. C. Dennis, Stafford ..	Stafford, E. C. Dennis .....
		Ingersoll & Bro., Stamford	Stamford, Ingersoll & Bro. ....
		The Narragansett Milling	
		Co., R. I. ....	Stonington, S. H. Chesebro .....

\* Excluding 4391.



## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4296	11.03	3.34	15.50	3.81	63.33	2.99	\$25.00
4289	10.34	3.39	15.75	3.84	63.52	3.16	22.00
4297	11.20	3.27	16.52	3.79	62.47	2.75	22.50
2450	10.97	3.59	15.50	3.71	63.17	3.06	24.00
4391	11.95	1.99	11.87	2.37	70.14	1.68	26.00
	10.70	3.37	15.80	3.74	63.39	3.00	
			13.27		58.33	1.82	
4529	8.33	5.11	27.94	10.36	47.14	1.12	16.75
			22.32	3.45	32.06	1.12	
4473	7.26	2.20	3.94	44.24	41.38	0.98	
4472	11.85	4.98	30.69	3.09	41.17	8.22	20.00
4402	10.32	1.87	10.56	4.11	68.74	4.40	29.00
4371	9.84	1.69	10.62	3.14	70.46	4.25	30.00
4292	10.91	1.86	10.75	3.04	69.15	4.29	30.00
4322	11.29	1.79	10.44	6.99	65.62	3.87	27.00
4329	10.58	1.62	10.25	3.16	70.28	4.11	28.00
4313	10.67	1.93	10.50	3.81	68.13	4.96	28.00
4467	9.42	2.66	10.94	7.04	66.33	3.61	28.00
4446	10.06	1.86	10.75	3.41	69.52	4.40	28.00
4458	9.23	2.69	11.44	5.79	66.32	4.53	25.00
4387	10.85	1.72	10.56	3.11	69.59	4.17	28.00
4537	8.33	3.60	8.75	12.89	64.03	2.40	24.00
4527	10.08	2.16	10.25	4.61	68.55	4.35	28.00
4525	9.86	1.98	10.81	4.24	68.86	4.25	29.00
4361	9.84	2.10	11.50	4.71	67.53	4.32	30.00
4365	10.46	1.70	10.56	3.84	69.00	4.44	28.00
2449	10.88	1.91	10.62	4.61	67.68	4.30	28.00
4445	10.59	1.75	10.62	3.51	69.28	4.25	28.00
4437	9.86	2.04	10.87	4.11	68.72	4.40	29.00
4483	10.18	1.82	10.94	4.04	68.58	4.44	28.00
4490	10.64	1.58	10.19	2.99	70.33	4.27	28.00
4335	10.87	2.69	12.50	4.86	64.53	4.55	29.00
4426	9.77	1.90	10.81	4.26	69.01	4.25	29.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4390	No. 1 Corn & Oats Prov- ender .....	Miner-Hillard Milling Co., Wilkesbarre .....	Thomaston, L. E. Blackmer.....
4344	Provender .....	Smith & Sons, West Corn- wall .....	West Cornwall, Smith & Sons....
4513	" .....	E. A. Buck & Co., Willi- mantic .....	Willimantic, E. A. Buck & Co. . .
4454	" .....	A. R. Manning & Co., Yantic .....	Yantic, A. R. Manning & Co. . . .
4532	Corn and Oats .....	Hawkins & Forbes, East Haven .....	East Haven, Hawkins & Forbes. Average of the above 26 analyses*
4327	Corn and Oat Feed .....	Hollister-Chase & Co., N. Y. ....	Bridgeport, Wheeler & Co.....
4543	Boss Corn and Oats Feed	The Akron Cereal Co., Akron, Ohio .....	Rockville, Edward White.....
4374	Vim Oat Feed .....	American Cereal Co., Chicago .....	Danbury, F. C. Benjamin & Co..
4299	Royal Oat Feed .....	Akron Cereal Co., Akron, Ohio .....	New Haven, Abner Hendee.....
4377	Victor Corn & Oat Feed.	American Cereal Co., Chicago .....	Danbury, F. C. Benjamin & Co. .
4405	" " "	American Cereal Co., Chicago .....	Derby, Peterson, Hendee & Co..
4364	" " "	American Cereal Co., Chicago .....	New Milford, T. Soule & Co.....
4346	" " "	American Cereal Co., Chicago .....	West Cornwall, Smith & Sons....
4349	Monarch Chop Feed .....	Husted Milling Co., Buf- falo, N. Y. ....	New Milford, Ackley, Hatch & Marsh .....
4549	De-Fi Corn & Oat Feed	Ellsworth & Co., Buffalo, N. Y. ....	Avon, J. & H. Woodford .....
4523	" " "	Ellsworth & Co., Buffalo N. Y. ....	Middletown, Meech & Stoddard .
4541	" " "	Ellsworth & Co., Buffalo, N. Y. ....	New Britain, C. W. Lines.....
4316	Champion Bell Fodder ..	Hollister, Chase & Co., New York .....	Bridgeport, Wheeler & Howe ...
4378	Corn, Oats and Barley ..	American Cereal Co., Chicago, Ill. ....	Danbury, O. H. Meeker .....
4356	" " "	American Cereal Co., Chicago, Ill. ....	New Milford, F. R. Green .....
4389	" " "	American Cereal Co., Chicago, Ill. ....	Thomaston, L. E. Blackmer.....
4392	" " "	American Cereal Co., Chicago, Ill. ....	Waterbury, D. L. Dickinson .....
4486	" " "	American Cereal Co., Chicago, Ill. ....	Willimantic, W. D. Grant .....
	<i>Proprietary Feeds.</i>		Average of the above 5 analyses.
4368	Quaker Dairy Feed .....	American Cereal Co., Chicago, Ill. ....	Bethel, Johnston & Morrison .....
4291	" " .....	American Cereal Co., Chicago, Ill. ....	Branford, S. V. Osborn.....
4328	" " .....	American Cereal Co., Chicago, Ill. ....	Bridgeport, Wheeler & Co.....

\* Excluding 4335.

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract, (Starch, gum, etc.)	Ether Extract.	
4390	10.50	2.04	10.12	3.86	69.20	4.28	\$28.00
4344	10.76	1.98	10.75	4.61	67.44	4.46	29.00
4513	9.52	2.44	11.37	4.81	67.20	4.66	27.00
4454	9.95	1.94	11.00	4.34	68.48	4.29	28.00
4532	10.10 10.17	1.61 2.01	10.37 10.63	2.67 4.53	70.56 68.40	4.69 4.26	24.00
4327	8.94	1.72	8.56	11.14	65.67	3.97	22.00
4543	7.38	3.63	8.87	12.74	63.89	3.49	26.00
4374	10.49	6.83	7.87	24.31	47.59	2.91	18.00
4299	7.12	6.42	6.31	25.96	51.97	2.22	17.00
4377	7.43	4.15	10.31	11.56	62.12	4.43	22.00
4405	8.00	4.07	12.56	11.47	59.64	4.26	23.00
4364	8.30	4.25	9.37	10.99	62.77	4.32	24.00
4346	8.89	3.11	9.00	11.20	64.28	3.52	24.00
4349	8.70	2.78	7.87	12.46	65.11	3.08	24.00
4549	7.95	4.49	9.25	14.39	60.65	3.27	24.00
4523	7.71	4.60	9.25	14.81	59.96	3.67	26.00
4541	7.77	4.31	9.25	14.34	61.90	2.43	21.00
4316	8.70	3.81	9.06	13.51	62.28	2.64	19.00
4378	7.46	4.55	12.62	10.36	60.14	4.87	22.00
4356	7.50	4.68	12.75	10.94	53.82	5.31	28.00
4389	8.47	4.36	12.19	10.76	59.66	4.56	26.00
4392	7.85	4.94	13.19	11.34	57.52	5.16	27.00
4486	7.81 7.82	4.80 4.67	12.06 12.56	11.09 10.90	59.68 59.16	4.56 4.89	23.00
4368	6.88	5.15	14.37	17.49	52.58	3.53	22.00
4291	7.32	5.40	14.12	17.14	52.52	3.50	22.00
4328	7.10	5.32	14.06	16.39	53.58	3.55	22.00

TABLE IV.—*Continued.* ANALYSES OF COMMERCIAL FEEDS.

Station No.	Name of Feed.	Manufacturer or Jobber.	Retail Dealer.
4531	Quaker Dairy Feed .....	American Cereal Co., Chicago, Ill. ....	East Haven, Hawkins & Forbes ..
2440	" " .....	American Cereal Co., Chicago, Ill. ....	New Haven, R. G. Davis .....
4420	" " .....	American Cereal Co., Chicago, Ill. ....	New London, E. Bishop .....
4444	" " .....	American Cereal Co., Chicago, Ill. ....	Norwich, A. A. Beckwith .....
4489	" " .....	American Cereal Co., Chicago, Ill. ....	Stafford, E. C. Dennis .....
4324	H-O Dairy Feed .....	H-O Co., Buffalo, N. Y. ...	Average of the above 8 analyses ..
4438	" " .....	" " " .....	Bridgeport, H. H. Bennett .....
4337	" " .....	" " " .....	Norwich, Norwich Grain Co. ....
			Stamford, E. E. Scofield .....
			Average of the above 3 analyses ..
4323	H-O Horse Feed .....	H-O Co., Buffalo, N. Y. ...	Digestible .....
4425	" " .....	" " " .....	Bridgeport, H. H. Bennett .....
4342	" " .....	" " " .....	Groton, Groton Grain Co. ....
4517	" " .....	" " " .....	Stamford, E. E. Scofield .....
			Willimantic, H. A. Bugbee .....
			Average of the above 8 analyses ..
4325	H-O Poultry Food .....	H-O Co., Buffalo, N. Y. ...	Digestible .....
4432	" " .....	" " " .....	Bridgeport, H. H. Bennett .....
4338	" " .....	" " " .....	Mystic, J. L. Manning & Co. ....
			Stamford, E. E. Scofield .....
			Average of the above 3 analyses ..
4369	American Poultry Food .....	American Cereal Co., Chicago, Ill. ....	Bethel, Johnston & Morrison ....
4293	" " .....	American Cereal Co., Chicago, Ill. ....	Branford, S. V. Osborn .....
4355	Blatchford's Calf Meal .....	J. W. Barwell, Waukegan, Ill. ....	New Milford, Ackley, Hatch & Marsh .....
4398	" " .....	J. W. Barwell, Waukegan, Ill. ....	Waterbury, Platt's Mill Co. ....
4431	Bowker's Animal Meal .....	The Bowker Co., Boston, Mass. ....	Mystic, J. L. Manning .....
4394	" " .....	The Bowker Co., Boston, Mass. ....	Waterbury, D. L. Dickinson .....
4298	Poultry Food .....	Lederer & Co., New Ha- ven, Conn. ....	New Haven, Abner Hendee .....
4480	Poultry Meal .....	John C. Dow Co., Boston, Mass. ....	Putnam, Bosworth Bros. ....
4482	Dow's Beef Scrap .....	John C. Dow Co., Boston	" " .....
4481	Poultry Feed .....	D. W. Romaine, Jersey City, N. J. ....	" " .....
4340	Imperial Egg Food .....	F. C. Sturtevant, Hart- ford, Conn. ....	Bridgeport, H. H. Bennett .....
4339	Poultriotone .....	W. D. Carpenter, Chicago, Ill. ....	" " .....
4441	Pasture Stock Food .....	Pasture Stock Food Co., Chicago, Ill. ....	Shelton, Taylor & Morse .....
4442	Wilbur's Horse & Cattle Food .....	Wilbur Seed Meal Co., Milwaukee, Wis. ....	Waterbury, W. H. Richmond .....

## SAMPLED IN 1901.

Station No.	ANALYSES.						Price per ton.
	Water.	Ash.	Protein.	Fiber.	Nitrogen-free Extract. (Starch, gum, etc.)	Ether Extract.	
4531	6.63	5.07	14.19	15.89	54.37	3.85	\$22.00
2440	8.13	5.27	13.12	16.19	54.71	2.58	21.00
4420	7.30	5.17	13.56	17.64	52.73	3.60	23.00
4444	6.86	5.12	14.12	16.21	54.06	3.63	22.00
4489	7.65	4.24	11.25	16.06	57.53	2.37	20.00
	7.23	5.09	13.60	16.74	54.01	3.33	
4324	8.25	3.75	20.00	11.69	52.26	4.05	24.00
4438	7.49	3.90	19.37	12.27	52.83	4.14	27.00
4337	8.51	4.40	19.69	11.24	52.06	4.10	25.00
	8.08	4.02	19.69	11.73	52.38	4.10	
			15.36	4.81	36.67	3.52	
4323	8.05	3.57	12.87	8.86	62.13	4.52	25.00
4425	8.80	3.85	13.44	10.09	59.66	4.16	25.00
4342	8.39	3.51	13.12	9.69	60.55	4.74	26.00
4517	8.14	3.58	12.69	10.34	61.36	3.89	25.00
	8.35	3.63	13.03	9.74	60.92	4.33	
			9.64	3.41	48.13	3.64	
4325	9.14	2.77	18.12	4.81	59.97	5.19	35.00
4432	8.92	2.59	16.87	4.61	61.95	5.06	29.00
4338	9.09	2.70	18.81	5.14	58.83	5.43	33.00
	9.05	2.69	17.93	4.85	60.25	5.23	
4369	8.98	2.75	14.50	5.26	61.75	6.76	30.00
4293	9.10	2.75	14.25	4.71	62.26	6.93	28.00
4355	9.84	4.40	24.81	4.39	51.53	5.03	70.00
4398	9.11	4.65	26.19	4.11	50.96	4.98	70.00
4431	5.46	45.23	39.00	1.09	1.12	8.10	40.00
4394	5.76	45.95	38.25	1.55	0.83	7.66	50.00
4298	6.17	22.50	53.00	----	----	13.75	42.00
4480	7.18	39.82	31.75	2.91	8.29	10.05	40.00
4482	8.82	23.05	50.37	2.29	1.20	14.27	43.00
4481	4.45	24.52	37.56	5.41	6.42	21.64	35.00
4340	3.49	57.00	9.69	5.89	22.58	1.35	----
4339	6.36	18.45	16.87	7.51	47.33	3.48	----
4441	6.57	12.82	17.12	6.56	53.65	3.28	----
4442	6.18	9.40	22.37	9.24	48.52	4.29	----











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